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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,263	02/16/2001	Jesus Al Ortiz	20843000200	4933

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EXAMINER

KENNY, STEPHEN

ART UNIT PAPER NUMBER

3726

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,263

Applicant(s)

ORTIZ ET AL.

Examiner

Stephen J Kenny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2001.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 1-12, 24-34, 41-45, 50-58 and 68-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-23, 35-40, 46-49 and 59-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

Claims 1-12, 24-34, 41-45, 50-58, 68-72 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim. Election was made **without** traverse during a telephone conversation with Craig Wong to prosecute the invention of Group IV, claims 13-23, 35-40, 46-49, 59-67.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13, 16, 17, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Higgins III (US Patent No 5639989).

Regarding claim 13, Higgins discloses a method of EMI shielding by encapsulating an electronic component with a conforming insulating base coating (column 6, lines 20-22); applying a first conductive layer over the base coating (column 6, lines 64-66); grounding the conductive layer to a ground trace to form an EMI shield for the electric component (column 7, lines 47-51).

Regarding claim 16, Higgins discloses the first conductive layer comprises copper (column 7, line 35 & line 40).

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Regarding claim 17, Higgins discloses applying a second conductive layer over the first conductive layer (column 9, lines 47-54).

Regarding claim 21, Higgins discloses positioning the ground trace or "ring" around a periphery of the component (column 7, lines 47-51 & item 19 in Figure 2).

Claim 35 is rejected under 35 U.S.C. 102(b) as being anticipated by Gabower (1995)(*Thermoformed Vacuum Metallized Inserts For EMI Shielding of Electronic Devices*, Consumer Electronics Show, Flamingo Hilton and Tower, Las Vegas, Nevada, pp. 151-158).

Gabower discloses vacuum metallizing a conductive layer onto a thermoformed article; attaching the vacuum metallized thermoform to a ground trace on a circuit board to form a grounded shield (page 153, last paragraph). Note, it is inherent that the metallized thermoform be attached to a ground trace in order to form an EMI shield.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14, & 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in view of DiLeo (US Patent No 5968600).

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Higgins discloses the instant invention except for applying the conductive layer via vacuum metallizing, and maintaining the temperature of the component and base coating below 200°C.

DiLeo discloses applying an EMI coating via vacuum metallizing (column 1, line 27), as well as maintaining a temperature below 200°C (column 4, lines 36-40). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the EMI shield of Higgins via vacuum metallizing at a temperature below 200°C as taught by DiLeo in order to realize the advantages of a cost effective, environmentally desirable, and consistent coating.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in view of Pienimaa et al (US Patent No 6110563).

Higgins discloses the instant invention except for applying an insulating layer over the first conductive layer.

Pienimaa discloses applying an insulative layer over a first conductive layer (column 4, lines 59-65). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the EMI coating as disclosed by Higgins while applying an insulating layer over the first conductor as taught by Pienimaa in order to form a protective barrier for the conductive layer.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in view of Pienimaa as applied to claim 18 above, and further in view of DiLeo.

Higgins/Pienimaa disclose the instant invention except for the insulating layer is waterproof.

DiLeo discloses an insulative layer that is "environmental resistant" or waterproof (column 2, line 47). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the EMI shield as disclosed by Higgins/Pienimaa with a waterproof insulating layer to provide a more robust EMI shield that will not degrade under adverse environments.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in view of Gabower (*Thermoformed Vacuum Metallized Inserts For EMI Shielding of Electronic Devices*, Consumer Electronics Show, Flamingo Hilton and Tower, Las Vegas, Nevada, pp. 151-158).

Higgins discloses the instant invention except for adhering the conductive layer via a glow discharge process.

Regarding claim 20, Gabower discloses employing a glow discharge operation (page 156, 1st paragraph) when forming an EMI shield. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form an EMI shield as disclosed by Higgins by using a glow discharge process as taught by Gabower in order to improve the adhesion of the insulator to the conductive layer.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins in view of Denzene et al (US Patent No 6219258).

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Higgins discloses the instant invention except for the ground trace being disposed between a first and second component.

Denzene discloses a ground trace between a first and second component (column 1, lines 29-32). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the EMI shield as disclosed by Higgins while disposing the ground trace between components to divide the circuit board into sections which would allow for different levels of EMI shielding depending on which components were housed in a given section.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Higgins.

Higgins discloses the claimed invention except for exposing the ground trace through the insulating coating. It would have been an obvious matter of design choice to expose the ground trace through the insulating coating, since applicant has not disclosed that exposing said ground through the insulating coating solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the Higgins configuration (column 5, lines 16-18). In other words, it is necessary for the ground trace to be in contact with the conductive layer in order to pass any current or charge away from the protected component. So coating said ground with the insulating coating, to then remove or "expose" said ground is an additional step not required by Higgins.

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Claims 36-40, 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabower in view of Denzene (US Patent No 6219258).

Regarding claims 36 & 46, Gabower discloses the instant invention except for forming a plurality of compartments and separating electronic components into separate compartments.

Denzene discloses forming and grounding separate compartments of a circuit board wherein each section houses various components (column 1, lines 29-40). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a thermoform as disclosed by Gabower with multiple compartments wherein each compartment is conductively separated as taught by Denzene in order to allow for different levels of EMI shielding depending on which components were housed in a given section.

Regarding claims 37-40, Gabower/Denzene disclose the claimed invention except for coupling a conductive adhesive between the thermoform and the ground trace. It would have been an obvious matter of design choice to use a conductive adhesive to bond the ground trace to the thermoform, since applicant has not disclosed that using such an adhesive solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well by plating the ground traces as disclosed by Denzene. It is imperative that the ground trace be connected to the thermoform, but the means for forming that connection do not carry any patentable weight.

Regarding claim 47, Gabower disclose a substrate of injection molded plastic (page 153, 1st paragraph).

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Regarding claims 48 & 49, Denzene discloses contacting attachment surfaces (walls) against the ground trace between the electronic components, wherein the attachment surfaces completely surround the electronic components (column 1, lines 25-45).

Claims 59-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lacey (US Patent No 6271465) in view of Askew (US Patent No 6350951).

Regarding claim 59, Lacey discloses an EMI shield by attaching a base portion of a metallized substrate to the ground trace surrounding an electronic component (column 3, lines 65 – column 4, line 5). Lacey does not disclose removably coupling a top portion to the base portion.

Askew discloses removing the top portion of a circuit board cover to expose the electrical components. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form an EMI shielding substrate as disclosed by Lacey with a removable top portion to allow the enclosed electrical components to be tested.

Regarding claim 60, Lacey discloses positioning a conductive adhesive (18) over a ground trace (5A) (Figure 3A).

Regarding claims 61, 62, 64, & 65, Lacey discloses the instant invention except for overlapping a bottom portion with the top portion, comprising protrusions spaced no larger than one-half a wavelength apart, and inserting a tab in a groove of the bottom portion. It would have been an obvious matter of design choice to overlap the top & bottom portions, space protrusions less than one-half a wavelength apart, and insert a tab into a groove of the bottom portion, since

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applicant has not disclosed that such an overlapping or tab & groove solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the Lacey configuration.

Regarding claim 63, Lacey discloses protrusions or "ribs" (12) between a periphery of the top portion and the bottom portion of the EMI shield (Figure 3A).

Regarding claim 66, thermally evaporating is a process known and well established within the art as a functional equivalent of vacuum metallizing, spraying, screen or stencil printing, dip-coating, etc.

Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lacey in view of Gabower (*Thermoformed Vacuum Metallized Inserts For EMI Shielding of Electronic Devices*, Consumer Electronics Show, Flamingo Hilton and Tower, Las Vegas, Nevada, pp. 151-158).

Lacey discloses the instant invention except for the substrate body comprising a thermoform or injection molded plastic.

Gabower discloses forming a substrate body out of injection molded plastic (page 153, 1st paragraph). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the EMI shield disclosed by Lacey with a injection molded plastic as taught by Gabower to realize the cost effectiveness of injection molding.

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Conclusion


The prior art made of record on the attached PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J Kenny whose telephone number is 703-306-0359. The examiner can normally be reached on mon - fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Vidovich can be reached on 703-308-1513. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

sk
September 27, 2002


GREGORY M. VIDOVIK
PRIMARY EXAMINER